

SEQUENCE LISTING

<110>	Zebedee, Suzanne Inchauspe, Genevieve Nasoff, Marc S. Prince, Alfred M.	
<120>	METHODS AND SYSTEMS FOR PRODUCING RECOMBINANT VIRAL ANTIGENS	
<130>	323-100USD	
<140> <141>	10/677,956 2003-10-01	
<150> <151>	08/931,855 1997-09-16	
<150> <151>	08/563,733 1995-11-08	
<150> <151>	08/272,271 1994-07-08	
<150> <151>	07/616,369 1990-11-21	
<150> <151>	07/573,643 1990-08-27	
<160>	76	
<170>	PatentIn version 3.3	
<210> <211> <212> <213>	1 795 DNA Human immunodeficiency virus	
<220> <221> <222>	CDS (16)(789)	
<400> aggagg	1 gttt ttcat atg cca atc gtg cag aac atc cag ggg caa atg gta Met Pro Ile Val Gln Asn Ile Gln Gly Gln Met Val 1 5 10	51
cat ca His Gl	g gcc ata tca cct aga act tta aat gca tgg gta aaa gta gta n Ala Ile Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Val Val 15 20 25	99
gaa ga Glu Gl 30	u Lys Ala Phe Ser Pro Glu Val Ile Pro Met Phe Ser Ala Leu	147
tca ga Ser Gl 45	a gga gcc acc cca caa gat tta aac acc atg cta aac aca gtg u Gly Ala Thr Pro Gln Asp Leu Asn Thr Met Leu Asn Thr Val 50 55 60	195
ggg gg	a cat caa gca gcc atg caa atg tta aaa gag acc atc aat gag Page 1	243

Gly	Gly	His	Gln	Ala 65	Аlа	Met	Gln		16988 Leu 70				Ile	Asn 75	Glu	
gaa Glu	gct Ala	gca Ala	gaa Glu 80	tgg Trp	gat Asp	aga Arg	gtg Val	cat His 85	cca Pro	gtg val	cat His	gca Ala	ggg Gly 90	cct Pro	att Ile	291
gca Ala	cca Pro	ggc Gly 95	cag Gln	atg Met	aga Arg	gaa Glu	cca Pro 100	agg Arg	gga Gly	agt Ser	gac Asp	ata Ile 105	gca Ala	gga Gly	act Thr	339
act Thr	agt Ser 110	acc Thr	ctt Leu	cag Gln	gaa Glu	caa Gln 115	ata Ile	gga Gly	tgg Trp	atg Met	aca Thr 120	aat Asn	aat Asn	cca Pro	cct Pro	387
atc Ile 125	cca Pro	gta Val	gga Gly	gaa Glu	att Ile 130	tat Tyr	aaa Lys	aga Arg	tgg Trp	ata Ile 135	atc Ile	ctg Leu	gga Gly	tta Leu	aat Asn 140	435
aaa Lys	ata Ile	gta Val	aga Arg	atg Met 145	tat Tyr	agc Ser	cct Pro	acc Thr	agc Ser 150	att Ile	ctg Leu	gac Asp	ata Ile	aga Arg 155	caa Gln	483
													tat Tyr 170			531
cta Leu	aga Arg	gcc Ala 175	gag Glu	caa Gln	gct Ala	tca Ser	cag Gln 180	gag Glu	gta Val	aaa Lys	aat Asn	tgg Trp 185	atg Met	aca Thr	gaa Glu	579
acc Thr	ttg Leu 190	ttg Leu	gtc Val	caa Gln	aat Asn	gcg Ala 195	aac Asn	cca Pro	gat Asp	tgt Cys	aag Lys 200	act Thr	att Ile	tta Leu	aaa Lys	627
gca Ala 205	ttg Leu	gga Gly	cca Pro	gcg Ala	gct Ala 210	aca Thr	cta Leu	gaa Glu	gaa Glu	atg Met 215	atg Met	aca Thr	gca Ala	tgt Cys	cag Gln 220	675
gga Gly	gta Val	gga Gly	gga Gly	ccc Pro 225	aaa Lys	aat Asn	caa Gln	caa Gln	tta Leu 230	tta Leu	tcc Ser	tta Leu	tgg Trp	ggg Gly 235	tgt Cys	723
aaa Lys	ggg Gly	aaa Lys	ctt Leu 240	gtt Val	tgt Cys	tat Tyr	act Thr	tcc Ser 245	gtt Val	aaa Lys	tgg Trp	aat Asn	gga Gly 250	ccc Pro	ggc Gly	771
cat His	aag Lys	gca Ala 255	aga Arg	gtt Val	ttg Leu	taat	aa									795
<210 <212 <212 <213	L> 2 2> F	258 PRT	ı imn	unoc	defic	ienc	y vi	rus								
<400)> 2	2														
Met 1	Pro	Ile	Val	Gln 5	Asn	Ile	Gln	Gly	Gln 10	Met	val	His	Gln	Ala 15	Ile	

Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Val Val Glu Glu Lys Ala 20 25 30 Phe Ser Pro Glu Val Ile Pro Met Phe Ser Ala Leu Ser Glu Gly Ala 35 40 45 Thr Pro Gln Asp Leu Asn Thr Met Leu Asn Thr Val Gly Gly His Gln 50 60 Ala Ala Met Gln Met Leu Lys Glu Thr Ile Asn Glu Glu Ala Ala Glu 65 70 80 Trp Asp Arg Val His Pro Val His Ala Gly Pro Ile Ala Pro Gly Gln
85 90 95 Met Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr Thr Ser Thr Leu 100 105 110 Gln Glu Gln Ile Gly Trp Met Thr Asn Asn Pro Pro Ile Pro Val Gly 115 120 125 Glu Ile Tyr Lys Arg Trp Ile Ile Leu Gly Leu Asn Lys Ile Val Arg Met Tyr Ser Pro Thr Ser Ile Leu Asp Ile Arg Gln Gly Pro Lys Glu 145 150 155 160 Pro Phe Arg Asp Tyr Val Asp Arg Phe Tyr Lys Thr Leu Arg Ala Glu 165 170 175 Gln Ala Ser Gln Glu Val Lys Asn Trp Met Thr Glu Thr Leu Leu Val Gln Asn Ala Asn Pro Asp Cys Lys Thr Ile Leu Lys Ala Leu Gly Pro 195 200 205 Ala Ala Thr Leu Glu Glu Met Met Thr Ala Cys Gln Gly Val Gly 210 220 Pro Lys Asn Gln Gln Leu Leu Ser Leu Trp Gly Cys Lys Gly Lys Leu 225 230 235 240 Val Cys Tyr Thr Ser Val Lys Trp Asn Gly Pro Gly His Lys Ala Arg 245 250 255 Val Leu

<210> 3 <211> 795 <212> DNA <213> Human immunodeficiency virus												
<220> <221> CDS <222> (16)(789)												
<400> 3 aggagggttt ttcat atg cca atc gtg cag aac atc cag ggg caa atg gta Met Pro Ile Val Gln Asn Ile Gln Gly Gln Met Val 1 5 10												
cat cag gcc ata tca cct aga act tta aat gca tgg gta aaa gta gta His Gln Ala Ile Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Val Val 15 20 25	99											
gaa gag aag gct ttc agc cca gaa gtg ata ccc atg ttt tca gca tta Glu Glu Lys Ala Phe Ser Pro Glu Val Ile Pro Met Phe Ser Ala Leu 30 35 40	147											
tca gaa gga gcc acc cca caa gat tta aac acc atg cta aac aca gtg Ser Glu Gly Ala Thr Pro Gln Asp Leu Asn Thr Met Leu Asn Thr Val 45 50 55 60	195											
ggg gga cat caa gca gcc atg caa atg tta aaa gag acc atc aat gag Gly Gly His Gln Ala Ala Met Gln Met Leu Lys Glu Thr Ile Asn Glu 65 70 75	243											
gaa gct gca gaa tgg gat aga gtg cat cca gtg cat gca ggg cct att Glu Ala Ala Glu Trp Asp Arg Val His Pro Val His Ala Gly Pro Ile 80 85 90	291											
gca cca ggc cag atg aga gaa cca agg gga agt gac ata gca gga act Ala Pro Gly Gln Met Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr 95 100 105	339											
act agt acc ctt cag gaa caa ata gga tgg atg aca aat aat cca cct Thr Ser Thr Leu Gln Glu Gln Ile Gly Trp Met Thr Asn Asn Pro Pro 110 115 120	387											
atc cca gta gga gaa att tat aaa aga tgg ata atc ctg gga tta aat Ile Pro Val Gly Glu Ile Tyr Lys Arg Trp Ile Ile Leu Gly Leu Asn 125 130 135 140	435											
aaa ata gta aga atg tat agc cct acc agc att ctg gac ata aga caa Lys Ile Val Arg Met Tyr Ser Pro Thr Ser Ile Leu Asp Ile Arg Gln 145 150 155	483											
gga cca aag gaa ccc ttt aga gac tat gta gac cgg ttc tat aaa act Gly Pro Lys Glu Pro Phe Arg Asp Tyr Val Asp Arg Phe Tyr Lys Thr 160 165 170	531											
cta aga gcc gag caa gct tca cag gag gta aaa aat tgg atg aca gaa Leu Arg Ala Glu Gln Ala Ser Gln Glu Val Lys Asn Trp Met Thr Glu 175 180 185	579											
acc ttg ttg gtc caa aat gcg aac cca gat tgt aag act att tta aaa Thr Leu Leu Val Gln Asn Ala Asn Pro Asp Cys Lys Thr Ile Leu Lys 190 195 200 Page 4	627											

gca Ala 205	Leu	gga Gly	cca Pro	gcg Ala	gct Ala 210	aca Thr	cta Leu	gaa Glu	gaa Glu	atg Met 215	atg Met	aca Thr	gca Ala	tgt Cys	cag Gln 220	675
gga Gly	gta Val	gga Gly	gga Gly	ccc Pro 225	aaa Lys	aat Asn	caa Gln	caa Gln	aga Arg 230	tta Leu	aat Asn	tta Leu	tgg Trp	ggg Gly 235	tgt Cys	723
						tat Tyr										771
cat His	aag Lys	gca Ala 255	aga Arg	gtt Val	ttg Leu	taa	taa									795
<21 <21	<210> 4 <211> 258 <212> PRT <213> Human immunodeficiency virus															
<40	0>	4														
Met 1	Pro	Ile	٧al	Gln 5	Asn	Ile	Gln	Gly	Gln 10	Met	val	His	Gln	Ala 15	Ile	
Ser	Pro	Arg	Thr 20	Leu	Asn	Ala	Тгр	val 25	Lys	٧a٦	۷al	Glu	Glu 30	Lys	Ala	
Phe	Ser	Pro 35	Glu	٧a٦	Ile	Pro	Met 40	Phe	Ser	Ala	Leu	Ser 45	Glu	Gly	Ala	
Thr	Pro 50	Gln	Asp	Leu	Asn	Thr 55	Met	Leu	Asn	⊤hr	Val 60	Gly	Gly	His	Gln	
Ala 65	Ala	Met	Gln	Met	Leu 70	Lys	Glu	Thr	Ile	Asn 75	Glu	Glu	Ala	Ala	Glu 80	
Trp	Asp	Arg	val	ніs 85	Pro	val	ніѕ	Ala	G]y 90	Pro	Ile	Αla	Pro	G]y 95	Gln	
Met	Arg	Glu	Pro 100	Arg	Gly	Ser	Asp	Ile 105	Ala	Gly	Thr	Thr	Ser 110	Thr	Leu	
Gln	Glu	Gln 115	Ile	Glу	Тгр	Met	Thr 120	Asn	Asn	Pro	Pro	Ile 125	Pro	val	Gly	
Glu	Ile 130	Tyr	Lys	Arg	Тгр	Ile 135	Ile	Leu	Gly	Leu	Asn 140	Lys	Ile	Val	Arg	•
Met 145	Tyr	Ser	Pro	Thr	Ser 150	Ile	Leu	Asp		Arg 155 Page		Gly	Pro	Lys	Glu 160	

Pro Phe Arg Asp Tyr Val Asp Arg Phe Tyr Lys Thr Leu Arg Ala Glu 165 170 175												
Gln Ala Ser Gln Glu Val Lys Asn Trp Met Thr Glu Thr Leu Leu Val 180 185 190												
Gln Asn Ala Asn Pro Asp Cys Lys Thr Ile Leu Lys Ala Leu Gly Pro 195 200 205												
Ala Ala Thr Leu Glu Glu Met Met Thr Ala Cys Gln Gly Val Gly Gly 210 220												
Pro Lys Asn Gln Gln Arg Leu Asn Leu Trp Gly Cys Lys Gly Lys Leu 235 230 235 240												
Ile Cys Tyr Thr Ser Val Lys Trp Asn Gly Pro Gly His Lys Ala Arg 245 250 255												
Val Leu												
<210> 5 <211> 795 <212> DNA <213> Human immunodeficiency virus												
<220> <221> CDS <222> (16)(789)												
<pre><400> 5 aggagggttt ttcat atg cca atc gtg cag aac atc cag ggg caa atg gta</pre>	<400> 5 aggagggttt ttcat atg cca atc gtg cag aac atc cag ggg caa atg gta Met Pro Ile Val Gln Asn Ile Gln Gly Gln Met Val											
	99											
His Gln Ala Ile Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Val Val 15 20 25												
15 20 25	47											
gaa gag aag gct ttc agc cca gaa gtg ata ccc atg ttt tca gca tta Glu Glu Lys Ala Phe Ser Pro Glu Val Ile Pro Met Phe Ser Ala Leu 30 35 40	47 95											
gaa gag aag gct ttc agc cca gaa gtg ata ccc atg ttt tca gca tta Glu Glu Lys Ala Phe Ser Pro Glu Val Ile Pro Met Phe Ser Ala Leu 30 tca gaa gga gcc acc cca caa gat tta aac acc atg cta aac aca gtg Ser Glu Gly Ala Thr Pro Gln Asp Leu Asn Thr Met Leu Asn Thr Val 45												

Met Pro Ile Val Gln Asn Ile Gln Gly Gln Met Val His Gln Ala Ile 1 5 10 15

Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Val Val Glu Glu Lys Ala 20 25 30

Phe Ser Pro Glu Val Ile Pro Met Phe Ser Ala Leu Ser Glu Gly Ala Page 7 Thr Pro Gln Asp Leu Asn Thr Met Leu Asn Thr Val Gly Gly His Gln 50 55 60

40

Ala Ala Met Gln Met Leu Lys Glu Thr Ile Asn Glu Glu Ala Ala Glu 65 70 75 80

Trp Asp Arg Val His Pro Val His Ala Gly Pro Ile Ala Pro Gly Gln 85 90 95

Met Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr Thr Ser Thr Leu 100 105 110

Gln Glu Gln Ile Gly Trp Met Thr Asn Asn Pro Pro Ile Pro Val Gly 115 120 125

Glu Ile Tyr Lys Arg Trp Ile Ile Leu Gly Leu Asn Lys Ile Val Arg 130 135 140

Met Tyr Ser Pro Thr Ser Ile Leu Asp Ile Arg Gln Gly Pro Lys Glu 145 150 155 160

Pro Phe Arg Asp Tyr Val Asp Arg Phe Tyr Lys Thr Leu Arg Ala Glu 165 170 175

Gln Ala Ser Gln Glu Val Lys Asn Trp Met Thr Glu Thr Leu Leu Val 180 185 190

Gln Asn Ala Asn Pro Asp Cys Lys Thr Ile Leu Lys Ala Leu Gly Pro 195 200 205

Ala Ala Thr Leu Glu Glu Met Met Thr Ala Cys Gln Gly Val Gly 210 220

Pro Gln Asn Gln Gln Leu Leu Asn Leu Trp Gly Cys Arg Gly Lys Ala 225 230 235 240

Ile Cys Tyr Thr Ser Val Gln Trp Asn Gly Pro Gly His Lys Ala Arg 245 250 255

Val Leu

<210> 7

<211> 378

<212> DNA <213> Hepatitis C virus

<220> <221> CDS <222> (16)(375)										
<pre><400> 7 aggagggttt ttcat atg agc acg aat cct aaa cct caa aga aaa acc aaa</pre>	51									
cgt aac acc aac cgt cgc cca cag gac gtc aag ttc ccg ggt ggc ggt Arg Asn Thr Asn Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly 15 20 25	99									
cag atc gtt ggt gga gtt tac ttg ttg ccg cgc agg ggc cct aga ttg Gln Ile Val Gly Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu 30 35 40	147									
ggt gtg cgc gcg acg agg aag act tcc gag cgg tcg caa cct cga ggt Gly Val Arg Ala Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly 45 50 55 60	195									
aga cgt cag cct atc ccc aag gtg cgt cgg ccg gag ggc agg acc tgg Arg Arg Gln Pro Ile Pro Lys Val Arg Arg Pro Glu Gly Arg Thr Trp 65 70 75	243									
gct cag ccc ggg tac cct tgg ccc ctc tat ggc aat gag ggt tgc ggg Ala Gln Pro Gly Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly 80 85 90	291									
tgg gcg gga tgg ctc ctg tct ccc cgt ggc tct cgg cct agc tgg ggc Trp Ala Gly Trp Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly 95 100 105	339									
ccc aca gac ccc cgg cgt agg tcg cgc aat ttg ggt taa Pro Thr Asp Pro Arg Arg Ser Arg Asn Leu Gly 110 115 120	378									
<210> 8 <211> 120 <212> PRT <213> Hepatitis C virus										
<400> 8										
Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn 1 5 10 15										
Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly 20 25 30										
Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala 35 40 45										
Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro 50 60										

16988 ST25.txt Ile Pro Lys Val Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly 65 70 75 80										
Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp 85 90 95										
Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro 100 105 110										
Arg Arg Arg Ser Arg Asn Leu Gly 115 120										
<210> 9 <211> 378 <212> DNA <213> Hepatitis C virus										
<220> <221> CDS <222> (16)(378)										
<pre><400> 9 aggagggttt ttcat atg agc acg aat cct aaa cct caa aga aaa acc aaa 51</pre>										
cgt aac acc aac cgt cgc cca cag gac gtc aag ttc ccg ggt ggc ggt Arg Asn Thr Asn Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly 15 20 25										
cag atc gtt ggt gga gtt tac ttg ttg ccg cgc agg ggc cct aga ttg Gln Ile Val Gly Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu 30 35 40										
ggt gtg cgc gcg acg agg aag act tcc gag cgg tcg caa cct cga ggt Gly Val Arg Ala Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly 45 50 55 60										
aga cgt cag cct atc ccc aag gca cgt cgg ccc gag ggc agg acc tgg Arg Arg Gln Pro Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Thr Trp 65 70 75										
gct cag ccc ggg tac cct tgg ccc ctc tat ggc aat gag ggt tgc ggg 291 Ala Gln Pro Gly Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly 80 85 90										
tgg gcg gga tgg ctc ctg tct ccc cgt ggc tct cgg cct agc tgg ggc Trp Ala Gly Trp Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly 95 100 105										
CCC aca gac ccc cgg cgt agg tcg cgc aat ttg ggt taa 378 Pro Thr Asp Pro Arg Arg Ser Arg Asn Leu Gly 110 115 120										
<210> 10 <211> 120 <212> PRT										

Hepatitis C virus <400> 10 Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn 10 15 Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly 20 25 30 Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala 35 40 45 Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro 50 60 Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly 65 70 75 80 Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro Arg Arg Arg Ser Arg Asn Leu Gly 115 120 <210> 378 <211> <212> DNA <213> Hepatitis C virus <220> <221> CDS <222> (16)..(375)<400> 11 aggagggttt ttcat atg agc acg aat cct aaa cct caa aga aaa acc aaa Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys $1 \hspace{1cm} 5 \hspace{1cm} 10$ 51 cgt aac acc aac cgt cgc cca cag gac gtc aag ttc ccg ggt ggc ggt Arg Asn Thr Asn Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly 99 cag atc gtt ggt gga gtt tac ttg ttg ccg cgc agg ggc cct aga ttg Gln Ile Val Gly Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu 30 35 40 147 ggt gtg cgc gcg acg agg aag act tcc gag cgg tcg caa cct cga ggt Gly Val Arg Ala Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly 45 50 55 60 195

aga Arg	cgt Arg	cag Gln	cct Pro	atc Ile 65	ccc Pro	aag Lys	gac Asp	cgt	cgg	8 ST tcc Ser	acq	ggc	aag Lys	tcc Ser 75	tgg Trp	243
ggt Gly	aag Lys	ccc Pro	ggg Gly 80	tac Tyr	cct Pro	tgg Trp	ccc Pro	ctc Leu 85	tat Tyr	ggc Gly	aat Asn	gag Glu	ggt Gly 90	tgc Cys	ggg Gly	291
tgg Trp	gcg Ala	gga Gly 95	tgg Trp	ctc Leu	ctg Leu	tct Ser	ccc Pro 100	cgt Arg	ggc Gly	tct Ser	cgg Arg	cct Pro 105	agc Ser	tgg Trp	ggc Gly	339
ccc Pro	aca Thr 110	gac Asp	ccc Pro	cgg Arg	cgt Arg	agg Arg 115	tcg Ser	cgc Arg	aat Asn	ttg Leu	ggt Gly 120	taa				378
<21 <21 <21 <21	1> : 2> :	12 120 PRT Hepa1	titis	s C v	/irus	5										
<40	0> :	12														
Met 1	Ser	Thr	Asn	Pro 5	Lys	Pro	Gln	Arg	Lys 10	Thr	Lys	Arg	Asn	Thr 15	Asn	
Arg	Arg	Pro	Gln 20	Asp	val	Lys	Phe	Pro 25	Gly	Gly	Gly	Gln	Ile 30	val	Gly	
Gly	val	Tyr 35	Leu	Leu	Pro	Arg	Arg 40	Gly	Pro	Arg	Leu	Gly 45	val	Arg	Ala	
Thr	Arg 50	Lys	Thr	Ser	Glu	Arg 55	Ser	Gln	Pro	Arg	Gly 60	Arg	Arg	G∏n	Pro	
Ile 65	Pro	Lys	Asp	Arg	Arg 70	Ser	Thr	Gly	Lys	Ser 75	Тгр	Gly	Lys	Pro	Gly 80	
туг	Pro	Trp	Pro	Leu 85	Tyr	Gly	Asn	Glu	G]y 90	Cys	Gly	Тгр	Αla	G]y 95	Trp	
Leu	Leu	Ser	Pro 100	Arg	Gly	Ser	Arg	Pro 105	Ser	Trp	Gly	Pro	Thr 110	Asp	Pro	
Arg	Arg	Arg 115	Ser	Arg	Asn	Leu	G]y 120									
<210 <211 <211 <211	l> : ?> :	L3 378 DNA Hepat	:itis	; C v	virus	;										
<220)>								D	ane '	12					

16988 ST25.txt <221> CDS <222> (16)(375)											
<pre><400> 13 aggagggttt ttcat atg agc acg aat cct aaa cct caa aga aaa acc aaa</pre>	51										
cgt aac acc aac cgt cgc cca cag gac gtc aag ttc ccg ggt ggc ggt Arg Asn Thr Asn Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly 15 20 25	99										
cag atc gtt ggt gga gtt tac ttg ttg ccg cgc agg ggc cct aga ttg Gln Ile Val Gly Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu 30 35 40	147										
ggt gtg cgc gcg acg agg aag act tcc gag cgg tcg caa cct cga ggt Gly Val Arg Ala Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly 45 50 55 60	195										
aga cgt cag cct atc ccc aag gca cgt cgg tcc gag ggc agg tcc tgg Arg Arg Gln Pro Ile Pro Lys Ala Arg Arg Ser Glu Gly Arg Ser Trp 65 70 75	243										
gct cag ccc ggg tac cct tgg ccc ctc tat ggc aat gag ggt tgc ggg Ala Gln Pro Gly Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly 80 85 90	291										
tgg gcg gga tgg ctc ctg tct ccc cgt ggc tct cgg cct agc tgg ggc Trp Ala Gly Trp Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly 95 100 105	339										
ccc aca gac ccc cgg cgt agg tcg cgc aat ttg ggt taa Pro Thr Asp Pro Arg Arg Arg Ser Arg Asn Leu Gly 110 115 120	378										
<210> 14 <211> 120 <212> PRT <213> Hepatitis C virus											
<400> 14											
Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn 1 . 5 10 15											
Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly 20 25 30											
Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala 35 40 45											
Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro 50 60											
Ile Pro Lys Ala Arg Arg Ser Glu Gly Arg Ser Trp Ala Gln Pro Gly 65 75 80											

Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala 6	Gly T 95	rp
---	-------------	----

Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro 100 105 110

Arg Arg Arg Ser Arg Asn Leu Gly 115 120

<210> <211> <212> <213>	381
<220>	

<221> CDS <222> (16)..(378)

<400> 15

ag	ggaggg	ttt	ttca [.]												g ggc o Gly	51
to Se	cc gtc er Val	act Thr 15	gtg Val	tcc Ser	cat His	cct Pro	aac Asn 20	atc Ile	gag Glu	gag Glu	gtt Val	gct Ala 25	ctg Leu	tcc Ser	acc Thr	99
	cc gga nr Gly 30															147
aa Ly 45	ng ggg /s Gly S	gga Gly	aga Arg	cat His	ctc Leu 50	atc Ile	ttc Phe	tgc Cys	cac His	tca Ser 55	aag Lys	aag Lys	aag Lys	tgc Cys	gac Asp 60	195
ga G	ag ctc lu Leu	gcc Ala	gcg Ala	aag Lys 65	ctg Leu	gtc Val	gca Ala	ttg Leu	ggc Gly 70	atc Ile	aat Asn	gcc Ala	gtg Val	gcc Ala 75	tac Tyr	243
ta Ty	ac cgc /r Arg	ggt Gly	ctt Leu 80	gac Asp	gtg Val	tct Ser	gtc Val	atc Ile 85	ccg Pro	acc Thr	agc Ser	ggc Gly	gat Asp 90	gtt val	gtc Val	291
gt Vä	c gtg il Val	tca Ser 95	acc Thr	gat Asp	gct Ala	ctc Leu	atg Met 100	act Thr	ggc Gly	ttt Phe	acc Thr	ggc Gly 105	gac Asp	ttc Phe	gac Asp	339

100

tcg gtg ata gac tgc aat acg ggt acc gag ctc gaa ttc taa Ser Val Ile Asp Cys Asn Thr Gly Thr Glu Leu Glu Phe 110 115 120

<210> 16 <211> 121 <212> PRT <213> Hepatitis C virus

<400> 16

381

Met 1	Pro	Ile	His	His 5	His	His	His	His	Gly 10	Pro	Gly	Ser	Val	Thr 15	Val	
Ser	His	Pro	Asn 20	Ile	Glu	Glu	Val	Ala 25	Leu	Ser	Thr	Thr	Gly 30	Glu	Ile	
Pro	Phe	Tyr 35	Gly	Lys	Ala	Ile	Pro 40	Leu	Glu	۷al	Ile	Lys 45	Gly	Gly	Arg	
His	Leu 50	Ile	Phe	Cys	His	Ser 55	Lys	Lys	Lys	Cys	Asp 60	Glu	Leu	Ala	Ala	
Lys 65	Leu	val	Ala	Leu	Gly 70	Ile	Asn	Ala	۷al	Ala 75	Tyr	Tyr	Arg	Gly	Leu 80	
Asp	۷al	Ser	٧a٦	Ile 85	Pro	Thr	Ser	Gly	Asp 90	val	۷al	Val	val	Ser 95	Thr	
Asp	Ala	Leu	Met 100	Thr	Gly	Phe	Thr	Gly 105	Asp	Phe	Asp	Ser	Val 110	Ile	Asp	
Cys	Asn	Thr 115	Gly	Thr	Glu	Leu	Glu 120	Phe								
<210 <211 <212 <213	L> 7 2> 0	L7 774 DNA Hepat	titis	5 C \	/irus	i										
<220 <221 <222	L> (DS (16) .	(77	71)												
<400 agga		L7 ctt t	tcat	ato Met	g tco Ser	cct Pro	ata Ile	a cta e Leu 5	a ggt u Gly	tat ⁄ Tyr	t tgg Trp	g aaa D Lys	a att	aag Lys	g ggc G Gly	51
											ctt Leu					99
gaa Glu	gag Glu 30	cat His	ttg Leu	tat Tyr	gag Glu	cgc Arg 35	gat Asp	gaa Glu	ggt Gly	gat Asp	aaa Lys 40	tgg Trp	cga Arg	aac Asn	aaa Lys	147
aag Lys 45	ttt Phe	gaa Glu	ttg Leu	ggt Gly	ttg Leu 50	gag Glu	ttt Phe	ccc Pro	aat Asn	ctt Leu 55	cct Pro	tat Tyr	tat Tyr	att Ile	gat Asp 60	195
ggt Gly	gat Asp	gtt Val	aaa Lys	tta Leu 65	aca Thr	cag Gln	tct Ser	atg Met	Ala 70	atc Ile	ata Ile 15	cgt Arg	tat Tyr	ata Ile 75	gct Ala	243
										auc						

											gag Glu					291
tca Ser	atg Met	ctt Leu 95	gaa Glu	gga Gly	gcg Ala	gtt Val	ttg Leu 100	gat Asp	att Ile	aga Arg	tac Tyr	ggt Gly 105	gtt Val	tcg Ser	aga Arg	339
att Ile	gca Ala 110	tat Tyr	agt Ser	aaa Lys	gac Asp	ttt Phe 115	gaa Glu	act Thr	ctc Leu	aaa Lys	gtt Val 120	gat Asp	ttt Phe	ctt Leu	agc Ser	387
aag Lys 125	cta Leu	cct Pro	gaa Glu	atg Met	ctg Leu 130	aaa Lys	atg Met	ttc Phe	gaa Glu	gat Asp 135	cgt Arg	tta Leu	tgt Cys	cat His	aaa Lys 140	435
aca Thr	tat Tyr	tta Leu	aat Asn	ggt Gly 145	gat Asp	cat His	gta Val	acc Thr	cat His 150	cct Pro	gac Asp	ttc Phe	atg Met	ttg Leu 155	tat Tyr	483
											atg Met					531
											gaa Glu					579
											gca Ala 200					627
ggc Gly 205	tgg Trp	caa Gln	gcc Ala	acg Thr	ttt Phe 210	ggt Gly	ggt Gly	ggc Gly	gac Asp	cat His 215	cct Pro	cca Pro	aaa Lys	tcg Ser	gat Asp 220	675
											ggt Gly					723
											ttc Phe					771
tga																774
<210		.8														

<211> 252 <212> PRT <213> Hepa

Hepatitis C virus

<400>

Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$

Thr Arg Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu 20 25 30

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu 35

Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys 50

Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn 65 70 75 80

Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu 85 90 95

Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser 100 105 110

Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu 115 120 125

Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn 130 135 140

Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp 145 150 155 160

Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu 165 170 175

Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr 180 185 190

Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala 195 200 205

Thr Phe Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg 210 215 220

Gly Ser Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly Gly Val 225 230 235 240

Tyr Leu Leu Pro Arg Arg Glu Phe Ile Val Thr Asp 245 250

<210> 19

<211> 31

<212> DNA

<213> Artificial

<220>

<223> synthetic oligonucleotide

<400> ccaaaa	19 ttac catatgccaa tcgtgcagaa	С		31
<210> <211> <212> <213>	20 33 DNA Artificial		·	
<220> <223>	synthetic oligonucleotide			
<400> gacccg	20 gcca taaggcaaga gttttgtaat	aag		33
<210> <211> <212> <213>	21 34 DNA Artificial			
<220> <223>	synthetic oligonucleotide			
<400> gatcct	21 tatt acaaaactct tgccttatgg	ccgg		34
<210> <211> <212> <213>	22 28 DNA Artificial			
<220> <223>	synthetic oligonucleotide			
<400> gctcgca	22 atat gagcacgatt cccaaacc			28
<210> <211> <212> <213>	23 32 DNA Artificial			
<220> <223>	synthetic oligonucleotide			
<400> gacgaat	23 ctct taacccaaat tgcgcgacct	ac		32
<210> <211> <212> <213>	24 66 DNA Artificial			
<220> <223>	synthetic oligonucleotide			
<400> gatccga	24 acgt caagttcccg ggtggcggtc	agatcgttgg tggagtttac Page 18	ttgttgccgc	60

gcaggg		66
<210> <211> <212> <213>	25 66 DNA Artificial	
<220> <223>	synthetic oligonucleotide	
<400>	25 ctgc gcggcaacaa gtaaactcca ccaacgatct gaccgccacc cgggaacttg	60
acgtcg		66
<210> <211> <212> <213>	26 28 DNA Artificial	
<220> <223>	synthetic oligonucleotide	
	26 ccat atgtccccta tactaggt	28
<210> <211> <212> <213>	27 26 DNA Artificial	
<220> <223>	synthetic oligonucleotide	
<400> cggaati	27 tctc acctgcgcgg caacaa	26
<210> <211> <212> <213>	28 52 DNA Artificial	
<220> <223>	synthetic oligonucleotide	
<400> tatgcc1	28 tatt catcatcatc atcatcatgg cccgggaatt ctaagtaagt ag	52
<210> <211> <212> <213>	29 54 DNA Artificial	
<220> <223>	synthetic oligonucleotide	
<100s	20	

16988 ST25.txt gatcctactt acttagaatt cccgggccat gatgatgatg atgatgaata ggca												
<210> 30 <211> 978 <212> DNA <213> non-A, non-B hepatitis virus												
<220> <221> CDS <222> (1)(978) <223> non-A, non-B hepatitis virus structural antigen												
<pre><400> 30 atg agc acg att ccc aaa cgt caa aga aaa acc aaa cgt aac acc a Met Ser Thr Ile Pro Lys Arg Gln Arg Lys Thr Lys Arg Asn Thr 1</pre>												
cgt cgc cca cag gac gtc aag ttc ccg ggt ggc ggt cag atc gtt Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val 20 25 30												
gga gtt tac ttg ttg ccg cgc agg ggc cct aga ttg ggt gtg cgc g Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg 35 40 45												
acg agg aag act tcc gag cgg tcg caa cct cga ggt aga cgt cag Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln 50 55 60	cct 192 Pro											
atc ccc aag gca cgt cgg ccc gag ggc agg acc tgg gct cag ccc gle Pro Lys Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro 65 70 75	ggg 240 Gly 80											
tac cct tgg ccc ctc tat ggc aat gag ggt tgc ggg tgg gcg gga Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly 85 90 95	tgg 288 Trp											
ctc ctg tct ccc cgt ggc tct cgg cct agc tgg ggc ccc aca gac Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp 100 105 110												
cgg cgt agg tcg cgc aat ttg ggt aag gtc atc gat acc ctt acg Arg Arg Arg Ser Arg Asn Leu Gly Lys Val Ile Asp Thr Leu Thr 115 120 125	tgc 384 Cys											
ggc ttc gcc gac ctc atg ggg tac ata ccg ctc gtc ggc gcc cct of Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala Pro 130 140	ctt 432 Leu											
gga ggc gct gcc agg gcc ctg gcg cat ggc gtc cgg gtt ctg gaa g Gly Gly Ala Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu 7 145 150 155	gac 480 Asp 160											
ggc gtg aac tat gca aca ggg aac ctt cct ggt tgc tct ttc tct a Gly Val Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser 1 165 170 175	atc 528 Ile											
ttc ctt ctg gcc ctg ctc tct tgc ctg act gtg ccc gct tca gcc the leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser Ala 180 185 190												

16988 ST25.txt	
	624
aac tcg agt gtt gtg tac gag gcg gcc gat gcc atc ctg cac act ccg Asn Ser Ser Val Val Tyr Glu Ala Ala Asp Ala Ile Leu His Thr Pro 210 215 220	672
ggg tgt gtc cct tgc gtt cgc gag ggt aac gcc tcg agg tgt tgg gtg Gly Cys Val Pro Cys Val Arg Glu Gly Asn Ala Ser Arg Cys Trp Val 225 230 235 240	720
gcg gtg acc ccc acg gtg gcc acc agg gac ggc aaa ctt ccc aca acg Ala Val Thr Pro Thr Val Ala Thr Arg Asp Gly Lys Leu Pro Thr Thr 245 250 255	768
cag ctt cga cgt cat atc gat ctg ctt gtc ggg agc gcc acc ctc tgc Gln Leu Arg Arg His Ile Asp Leu Leu Val Gly Ser Ala Thr Leu Cys 260 265 270	816
tcg gcc ctc tac gtg ggg gac ctg tgc ggg tct gtc ttt ctc gtt ggt Ser Ala Leu Tyr Val Gly Asp Leu Cys Gly Ser Val Phe Leu Val Gly 275 280 285	864
caa ctg ttt acc ttc tct ccc agg cgc cac tgg acg acg caa gac tgc Gln Leu Phe Thr Phe Ser Pro Arg Arg His Trp Thr Thr Gln Asp Cys 290 295 300	912
aat tgt tct atc tat ccc ggc cat ata acg ggt cat cgc atg gca tgg Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His Arg Met Ala Trp 305 310 315 320	960
gat atg atg aac tgg Asp Met Met Asn Trp 325	978
<210> 31 <211> 948 <212> DNA <213> Artificial	
<pre><220> <223> Codes for a fusion protein that includes sequences from glutathione-S-transferase, non-A, non-B hepatitis virus capsid antigen, and a Factor X cleavage site</pre>	
<220> <221> CDS <222> (1)(945)	
<pre><400> 31 atg tcc cct ata cta ggt tat tgg aaa att aag ggc ctt gtg caa ccc Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro 1</pre>	48
act cga ctt ctt ttg gaa tat ctt gaa gaa aaa tat gaa gag cat ttg Thr Arg Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu 20 25 30	96
Tyr Ğlü Arg Asp Ğlu Ğİy Asp Lys Trp Arg Asn Lys Lys Phe Ğlu Leü 35 40 45	144
Page 21	

ggt Gly	ttg Leu 50	gag Glu	ttt Phe	ccc Pro	aat Asn	ctt Leu 55	cct Pro	tat Tyr	tat Tyr	att Ile	gat Asp 60	ggt Gly	gat Asp	gtt Val	aaa Lys	192
tta Leu 65	aca Thr	cag Gln	tct Ser	atg Met	gcc Ala 70	atc Ile	ata Ile	cgt Arg	tat Tyr	ata Ile 75	gct Ala	gac Asp	aag Lys	cac His	aac Asn 80	240
atg Met	ttg Leu	ggt Gly	ggt Gly	tgt Cys 85	cca Pro	aaa Lys	gag Glu	cgt Arg	gca Ala 90	gag Glu	att Ile	tca Ser	atg Met	ctt Leu 95	gaa Glu	288
gga Gly	gcg Ala	gtt Val	ttg Leu 100	gat Asp	att Ile	aga Arg	tac Tyr	ggt Gly 105	gtt Val	tcg Ser	aga Arg	att Ile	gca Ala 110	tat Tyr	agt Ser	336
					ctc Leu											384
					gaa Glu											432
					cat His 150											480
gtt Val	gtt Val	tta Leu	tac Tyr	atg Met 165	gac Asp	cca Pro	atg Met	tgc Cys	ctg Leu 170	gat Asp	gcg Ala	ttc Phe	cca Pro	aaa Lys 175	tta Leu	528
gtt Val	tgt Cys	ttt Phe	aaa Lys 180	aaa Lys	cgt Arg	att Ile	gaa Glu	gct Ala 185	atc Ile	cca Pro	caa Gln	att Ile	gat Asp 190	aag Lys	tac Tyr	576
					tat Tyr											624
acg Thr	ttt Phe 210	ggt Gly	ggt Gly	ggc Gly	gac Asp	cat His 215	cct Pro	cca Pro	aaa Lys	tcg Ser	gat Asp 220	ctg Leu	atc Ile	gaa Glu	ggt Gly	672
					tcg Ser 230											720
					aaa Lys											768
aag Lys	ttc Phe	ccg Pro	ggt Gly 260	ggc Gly	ggt Gly	cag Gln	atc Ile	gtt Val 265	ggt Gly	gga Gly	gtt Val	tac Tyr	ttg Leu 270	ttg Leu	ccg Pro	816
cgc Arg	agg Arg	ggc Gly 275	cct Pro	aga Arg	ttg Leu	ggt Gly	gtg Val 280	cgc Arg	gcg Ala	acg Thr	agg Arg	aag Lys 285	act Thr	tcc Ser	gag Glu	864
					ggt Gly				Pro		Pro					912

tgggta	aggt catcgatac	19
<210> <211> <212> <213>	37 17 DNA Artificial	
<220> <223>	synthetic oligonucleotide	
	37 atcg ataccct	17
<210> <211> <212> <213>	38 18 DNA Artificial	
<220> <223>	synthetic oligonucleotide	
<400> agatag	38 agaa agagcaac	18
<210> <211> <212> <213>		
<220> <223>	synthetic oligonucleotide	
<400> ggacca	39 gttc atcatcatat at	22
<210> <211> <212> <213>	DNA	
<220> <223>	synthetic oligonucleotide	
<400> cagttc	40 atca tcatatccca	20
<210> <211> <212> <213>	5 PRT	
<220> <223>	Synthetic Construct	
<400×	. 41	

```
16988 ST25.txt
Gly Ile Pro Asn Ser
        42
15
<210>
<211> 15
<212> DNA
<213> Artificial
<220>
<223>
       Codes for linker protein in GST-NANBV 693-691
<220>
<221> CDS
<222> (1)..(15)
<400> 42
ggg atc ccc aat tca
Gly Ile Pro Asn Ser
                                                                               15
<210>
        43
<211>
        3
<212> PRT
<213> Artificial
<220>
<223>
       Carboxy-terminal linker protein in GST-NANBV 693-691
<400> 43
Asn Ser Ser
<210> 44
<211> 12
<212>
       DNA
<213> Artificial
<220>
<223> Codes for carboxy-terminal linker protein in GST-NANBV 693-691
<220>
<221>
        CDS
<222>
        (1)..(9)
<400> 44
aat tca tcg tga
Asn Ser Ser
                                                                               12
<210> 45
<211> 9
<212> PRT
<213> Artificial
<220>
<223> Linker protein in GST-NANBV 15-18
                                           Page 25
```

```
<400> 45
Gly Ile Pro Ile Glu Phe Leu Gln Pro 1
<210> 46
<211>
       27
<212> DNA
<213> Artificial
<220>
<221>
       CDS
<222>
      (1)..(27)
      Codes for linker protein in GST-NANBV 15-18
<223>
<400> 46
ggg atc ccc atc gaa ttc ctg cag ccc
Gly Ile Pro Ile Glu Phe Leu Gln Pro
                                                                             27
       47
7
<210>
<211>
<212> PRT
<213> Artificial
<223>
       Carboxy-terminal linker protein in GST-NANBV 15-18
<400> 47
Trp Gly Ile Gly Asn Ser Ser
<210> 48
<211> 24
<212> DNA
<213> Artificial
<220>
<223> Codes for carboxy-terminal linker protein in GST-NANBV 15-18
<220>
<221>
       CDS
       (1)..(21)
<222>
<400> 48
                                                                             24
tgg ggg atc ggg aat tca tcg tga
Trp GTy Ile GTy Asn Ser Ser
1
<210> 49
<211> 8
<212> PRT
<213> Artificial
<220>
<223> Linker protein in GST-NANBV 15-17
```

```
<400> 49
Gly Ile Pro Asn Ser Cys Ser Pro
<210>
       50
<211>
       24
<212> DNA
<213> Artificial
<220>
<223> Codes for linker protein in GST-NANBV 15-17
<220>
<221> CDS
<222> (1)..(24)
<400> 50
ggg atc ccc aat tcc tgc agc cct
Gly Ile Pro Asn Ser Cys Ser Pro
                                                                              24
<210> 51
<211> 6
<212> PRT
<213> Artificial
<220>
<223> Carboxy-terminal linker protein in GST-NANBV 15-17
<400> 51
Gly Ile Gly Asn Ser Ser
<210>
       52
<211>
      21
<212> DNA
<213> Artificial
<220>
<223> Codes for carboxy-terminal linker protein in GST-NANBV 15-17
<220>
<221> CDS
<222> (1)..(18)
<400> 52
ggg atc ggg aat tca tcg tga
Gly Ile Gly Asn Ser Ser
                                                                              21
<210>
       53
<211> 5
<212>
      PRT
<213> Artificial
```

```
<220>
<223>
       Thrombin cleavage site in GST-NANBV 15-17
<400> 53
Val Pro Arg Gly Ser
<210> 54
<211> 15
<212> DNA
<213> Artificial
<220>
<223> Codes for thrombin cleavage site in GST-NANBV 15-17
<220>
<221> CDS
<222> (1)..(15)
<400> 54
gtt ccg cgt gga tcc
Val Pro Arg Gly Ser
1 5
                                                                                15
<210> 55
<211> 7
<212> PRT
<213> Artificial
<220>
<223>
      Linker protein in GST-NANBV 15-17
<400> 55
Pro Ser Asn Ser Cys Ser Pro
1 5
<210> 56
<211> 21
<212> DNA
<213> Artificial
<220>
<223> Codes for linker protein in GST-NANBV 15-17
<220>
<221> CDS
<222> (1)..(21)
<400> 56
cca tcg aat tcc tgc agc cct
Pro Ser Asn Ser Cys Ser Pro
1 5
                                                                                21
```

<210> 57

```
16988 ST25.txt
<211> 5
<212> PRT
<213> Artificial
<220>
<223>
      Carboxy-terminal linker protein in GST-NANBV 15-17
<400> 57
Gly Ile His Arg Asp
<210>
       58
18
<211>
<212>
       DNA
<213>
      Artificial
<220>
<223> Codes for carboxy-terminal linker protein in GST-NANBV 15-17
<220>
      CDS
(1)..(15)
<221>
<222>
<400> 58
                                                                          18
gga att cat cgt gac tga
Gly Ile His Arg Asp
<210> 59
<211> 9
<212> PRT
<213> Artificial
<220>
      Linker protein in GST-NANBV 690-691
<223>
<400>
       59
Gly Ile Pro Asn Ser Ser Ser Val Pro
<210>
       60
<211>
      27
<212>
      DNA
      Artificial
<213>
<220>
       Codes for linker protein in GST-NANBV 690-691
<220>
<221>
      CDS
```

27

<222>

<400> 60

(1)..(27)

ggg atc ccc aat tcg agc tcg gta ccc Gly Ile Pro Asn Ser Ser Ser Val Pro 1 5

```
<210>
       61
<211>
<212>
       PRT
<213> Artificial
<220>
<223>
       Carboxy-terminal linker protein in GST-NANBV 690-691
<400>
       61
Thr Gly Ile Gly Asn Ser Ser 1
<210> 62
<211>
       24
<212>
<213>
       DNA
       Artificial
<220>
      Codes for carboxy-terminal linker protein in GST-NANBV 690-691
<220>
<221>
       CDS
<222>
       (1)..(21)
<400> 62
acg ggg atc ggg aat tca tcg tga
Thr Gly Ile Gly Asn Ser Ser
                                                                              24
<210> 63
<211>
       66
<212> DNA
<213> Art
      Artificial
<220>
      synthetic oligonucleotide
<223>
<400> 63
gatccatgag cacgattccc aaacctcaaa gaaaaaccaa acgtaacacc aaccgtcgcc
                                                                              60
                                                                              66
cacagg
<210> 64
<211> 66
<212> DNA
       DNA
<213>
      Artificial
<220>
<223>
      synthetic oligonucleotide
<400> 64
aattcctgtg ggggacggtt ggtgttacgt ttggtttttc tttgaggttt gggaatcgtg
                                                                              60
                                                                              66
ctcatg
```

<211> 7 <212> 0	65 759 DNA Artifici	al				-	1698	3 ST	25.t	Κt				
Ç	Codes foglutathi antigen,	one-s	S-tra	ansfe	erase	e, no	on-A	, nor	n−B l	seqi nepar	uence titi:	es fi s vii	om ous c	apsid
	CDS (1)(75	6)		•										
<400> 6 atg tcc Met Ser 1	cct ata	cta Leu 5	ggt Gly	tat Tyr	tgg Trp	aaa Lys	att Ile 10	aag Lys	ggc Gly	ctt Leu	gtg Val	caa Gln 15	ccc Pro	48
act cga Thr Arg	ctt ctt Leu Leu 20	ttg Leu	gaa Glu	tat Tyr	ctt Leu	gaa Glu 25	gaa Glu	aaa Lys	tat Tyr	gaa Glu	gag Glu 30	cat His	ttg Leu	96
tat gag Tyr Glu	cgc gat Arg Asp 35	gaa Glu	ggt Gly	gat Asp	aaa Lys 40	tgg Trp	cga Arg	aac Asn	aaa Lys	aag Lys 45	ttt Phe	gaa Glu	ttg Leu	144
ggt ttg Gly Leu 50														192
tta aca Leu Thr 65	cag tct Gln Ser	atg Met	gcc Ala 70	atc Ile	ata Ile	cgt Arg	tat Tyr	ata Ile 75	gct Ala	gac Asp	aag Lys	сас His	aac Asn 80	240
atg ttg Met Leu	ggt ggt Gly Gly	tgt Cys 85	cca Pro	aaa Lys	gag Glu	cgt Arg	gca Ala 90	gag Glu	att Ile	tca Ser	atg Met	ctt Leu 95	gaa Glu	288
gga gcg Gly Ala	gtt ttg Val Leu 100	Asp	att Ile	aga Arg	tac Tyr	ggt Gly 105	gtt Val	tcg Ser	aga Arg	att Ile	gca Ala 110	tat Tyr	agt Ser	336
aaa gac Lys Asp														384
atg ctg Met Leu 130														432
ggt gat Gly Asp 145														480
gtt gtt Val Val														528
gtt tgt Val Cys	ttt aaa Phe Lys 180	Lys	cgt Arg	att Ile	gaa Glu	gct Ala 185	Ile	cca Pro age	Gln	att Ile	gat Asp 190	aag Lys	tac Tyr	576

ttg aaa tcc agc aag tat ata gca tgg cct ttg cag ggc tgg caa gcc Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala 195 200 205
acg ttt ggt ggt ggc gac cat cct cca aaa tcg gat ctg gtt ccg cgt Thr Phe Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg 210 215 220
gga tcc atg agc acg att ccc aaa cct caa aga aaa acc aaa cgt aac 720 Gly Ser Met Ser Thr Ile Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn 235 240
acc aac cgt cgc cca cag gaa ttc atc gtg act gac tga 759 Thr Asn Arg Arg Pro Gln Glu Phe Ile Val Thr Asp 245 250
<210> 66 <211> 66 <212> DNA <213> Artificial
<220> <223> synthetic oligonucleotide
<400> 66 gatccgacgt caagttcgcg ggtggcggtc agatcgttgg tggagtttac ttgttgccgc 60
gcaggg 66
<210> 67 <211> 66 <212> DNA <213> Artificial
<220> <223> synthetic oligonucleotide
<400> 67 aattccctgc gcggcaacaa gtaaactcca ccaacgatct gaccgccacc cgggaacttg 60
acgtcg 66
<210> 68 <211> 759 <212> DNA <213> Artificial
<220> <223> Codes for a fusion protein that includes sequences from glutathione-S-transferase, non-A, non-B hepatitis virus capsid antigen, and a thrombin cleavage site
<220> <221> CDS <222> (1)(756)
<pre><400> 68 atg tcc cct ata cta ggt tat tgg aaa att aag ggc ctt gtg caa ccc</pre>

1				5				:	16988 10	ST2	25.t	κt		15		
														cat His		96
tat Tyr	gag Glu	cgc Arg 35	gat Asp	gaa Glu	ggt Gly	gat Asp	aaa Lys 40	tgg Trp	cga Arg	aac Asn	aaa Lys	aag Lys 45	ttt Phe	gaa Glu	ttg Leu	144
ggt Gly	ttg Leu 50	gag Glu	ttt Phe	ccc Pro	aat Asn	ctt Leu 55	cct Pro	tat Tyr	tat Tyr	att Ile	gat Asp 60	ggt Gly	gat Asp	gtt Val	aaa Lys	192
														cac His		240
atg Met	ttg Leu	ggt Gly	ggt Gly	tgt Cys 85	cca Pro	aaa Lys	gag Glu	cgt Arg	gca Ala 90	gag Glu	att Ile	tca Ser	atg Met	ctt Leu 95	gaa Glu	288
gga Gly	gcg Ala	gtt val	ttg Leu 100	gat Asp	att Ile	aga Arg	tac Tyr	ggt Gly 105	gtt Val	tcg Ser	aga Arg	att Ile	gca Ala 110	tat Tyr	agt Ser	336
														cct Pro		384
														tta Leu		432
														ctt Leu		480
														aaa Lys 175		528
gtt val	tgt Cys	ttt Phe	aaa Lys 180	aaa Lys	cgt Arg	att Ile	gaa Glu	gct Ala 185	atc Ile	cca Pro	caa Gln	att Ile	gat Asp 190	aag Lys	tac Tyr	576
														caa Gln		624
														ccg Pro		672
gga Gly 225	tcc Ser	gac Asp	gtc val	aag Lys	ttc Phe 230	ccg Pro	ggt Gly	ggc Gly	ggt Gly	cag Gln 235	atc Ile	gtt Val	ggt Gly	gga Gly	gtt Val 240	720
						gaa Glu						tga				759

.210.	60							16988	ST	25.tx	κt				
<210> <211> <212> <213>	DNA	- icia	al												
<220> <223>	synth	netio	c ol·	i gonı	ucled	otide	9								
<400> gaatto		tgc	gcgg	ca a	caagi	taaa	c tc								32
<210> <211> <212> <213>	32 DNA	- icia	al												
<220> <223>	synth	netio	c ol-	i aonı	ucled	otide	2								
<400>	70														
gctgga	tcca g	cac	gatto	cc ca	aaac	ctcaa	a ag								32
<210> <211> <212> <213>	816 DNA	icia	al												
<220> <223>		ıthic	one-s	5-tra	ansfe	erase	e, no	on-A	, noi	า-B h					apsid
<220> <221> <222>		(813	3)												
<400>		2+2	cta	aat	+ 2+	taa	222	2++	220	aac	c++	ata	C 22	ccc	48
atg to Met Se 1	r Pro	Ile	Leu 5	Gly	Tyr	Trp	Lys	Ile 10	Lys	Gly	Leu	val	Gln 15	Pro	70
act cg Thr Ar	a ctt g Leu	ctt Leu 20	ttg Leu	gaa Glu	tat Tyr	ctt Leu	gaa Glu 25	gaa Glu	aaa Lys	tat Tyr	gaa Glu	gag Glu 30	cat His	ttg Leu	96
tat ga Tyr Gl	g cgc u Arg 35	gat Asp	gaa Glu	ggt Gly	gat Asp	aaa Lys 40	tgg Trp	cga Arg	aac Asn	aaa Lys	aag Lys 45	ttt Phe	gaa Glu	ttg Leu	144
ggt tt Gly Le 50	ŭĞlū														192
tta ac Leu Th 65	a cag r Gln	tct Ser	atg Met	gcc Ala 70	atc Ile	ata Ile	cgt Arg	tat Tyr	ata Ile 75	gct Ala	gac Asp	aag Lys	cac His	aac Asn 80	240
atg tt Met Le								Ala 90		Ile					288
								-							

gga Gly	gcg Ala	gtt Val	ttg Leu 100	gat Asp	att Ile	aga Arg	tac Tyr	ggt Gly 105	gtt Val	tcg Ser	aga Arg	att Ile	gca Ala 110	tat Tyr	agt Ser	336
	gac Asp															384
atg Met	ctg Leu 130	aaa Lys	atg Met	ttc Phe	gaa Glu	gat Asp 135	cgt Arg	tta Leu	tgt Cys	cat His	aaa Lys 140	aca Thr	tat Tyr	tta Leu	aat Asn	432
ggt Gly 145	gat Asp	cat His	gta Val	acc Thr	cat His 150	cct Pro	gac Asp	ttc Phe	atg Met	ttg Leu 155	tat Tyr	gac Asp	gct Ala	ctt Leu	gat Asp 160	480
gtt Val	gtt Val	tta Leu	tac Tyr	atg Met 165	gac Asp	cca Pro	atg Met	tgc Cys	ctg Leu 170	gat Asp	gcg Ala	ttc Phe	cca Pro	aaa Lys 175	tta Leu	528
gtt Val	tgt Cys	ttt Phe	aaa Lys 180	aaa Lys	cgt Arg	att Ile	gaa Glu	gct Ala 185	atc Ile	cca Pro	caa Gln	att Ile	gat Asp 190	aag Lys	tac Tyr	576
ttg Leu	aaa Lys	tcc Ser 195	agc Ser	aag Lys	tat Tyr	ata Ile	gca Ala 200	tgg Trp	cct Pro	ttg Leu	cag Gln	ggc Gly 205	tgg Trp	caa Gln	gcc Ala	624
acg Thr	ttt Phe 210	ggt Gly	ggt Gly	ggc Gly	gac Asp	cat His 215	cct Pro	cca Pro	aaa Lys	tcg Ser	gat Asp 220	ctg Leu	gtt Val	ccg Pro	cgt Arg	672
gga Gly 225	tcc Ser	agc Ser	acg Thr	att Ile	ccc Pro 230	aaa Lys	cct Pro	caa Gln	aga Arg	aaa Lys 235	acc Thr	aaa Lys	cgt Arg	aac Asn	acc Thr 240	720
aac Asn	cgt Arg	cgc Arg	cca Pro	cag Gln 245	gac Asp	gtc Val	aag Lys	ttc Phe	ccg Pro 2.50	ggt Gly	ggc Gly	ggt Gly	cag Gln	atc Ile 255	gtt Val	768
ggt Gly	gga Gly	gtt Val	tac Tyr 260	ttg Leu	ttg Leu	ccg Pro	cgc Arg	agg Arg 265	gaa Glu	ttc Phe	atc Ile	gtg Val	act Thr 270	gac Asp	tga	816
<21 <21	1> 2	72 271														

Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro $1 \ \ \,$ 10 $\ \ \,$ 15

Thr Arg Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu 20 25 30

<212> PRT <213> Artificial

<220> <223> Synthetic Construct

<400> 72

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu 35 40 45 Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys $50 \hspace{1cm} 55 \hspace{1cm} 60$ Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn 65 70 75 80 Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu 85 90 95 Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser 100 105 110 Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu 115 120 125 Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn 130 135 140 Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp 145 150 155 160 Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu 165 170 175 Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr 180 185 190 Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala 195 200 205 Thr Phe Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg 210 215 220

Gly Ser Ser Thr Ile Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr 225 230 235 240

Asn Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gln Ile Val 245 250 255

Gly Gly Val Tyr Leu Leu Pro Arg Glu Phe Ile Val Thr Asp 260 265 270

<210> <211> 73 326

<212> PRT

<213> non-A, non-B hepatitis virus

<400> 73

Met Ser Thr Ile Pro Lys Arg Gln Arg Lys Thr Lys Arg Asn Thr Asn $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$

Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly 20 25 30

Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala 35 40 45

Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro 50 55 60

Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly 65 70 75 80

Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp 85 90 95

Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro 100 105 110

Arg Arg Arg Ser Arg Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys 115 125

Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu 130 140

Gly Gly Ala Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp 145 150 155 160

Gly Val Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile 165 170 175

Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr 180 185 190

Gln Val Arg Asn Ser Ser Gly Leu Tyr His Val Thr Asn Asp Cys Pro 195 200 205

Asn Ser Ser Val Val Tyr Glu Ala Ala Asp Ala Ile Leu His Thr Pro 210 215 220

Gly Cys Val Pro Cys Val Arg Glu Gly Asn Ala Ser Arg Cys Trp Val 225 230 235 240 Page 37

Ala Val Thr Pro Thr Val Ala Thr Arg Asp Gly Lys Leu Pro Thr Thr 245 250 255

Gln Leu Arg Arg His Ile Asp Leu Leu Val Gly Ser Ala Thr Leu Cys 260 265 270

Ser Ala Leu Tyr Val Gly Asp Leu Cys Gly Ser Val Phe Leu Val Gly 275 280 . 285

Gln Leu Phe Thr Phe Ser Pro Arg Arg His Trp Thr Thr Gln Asp Cys 290 295 300

Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His Arg Met Ala Trp 305 310 315 320

Asp Met Met Met Asn Trp 325

<210> 74

<211> 315

<212> PRT

<213> Artificial

<220>

<223> Synthetic Construct

<400> 74

Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$

Thr Arg Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu 20 25 30

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu 35 40 45

Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys $50 \hspace{1cm} 55 \hspace{1cm} 60$

Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn 65 70 75 80

Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu 85 90 95

Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser 100 105 110

Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu 115 120 125 Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn 130 140 Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp 145 150 155 160 Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu 165 170 175 Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr 180 185 190 Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala 195 200 205 Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ser Asp Leu Ile Glu Gly 210 220 Arg Gly Ile Pro Asn Ser Ser Ser Val Pro Met Ser Thr Ile Pro Lys 235 230 235 Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn Arg Arg Pro Gln Asp Val 245 250 255 Lys Phe Pro Gly Gly Gly Gln Ile Val Gly Gly Val Tyr Leu Leu Pro 260 265 270 Arg Arg Gly Pro Arg Leu Gly Val Arg Ala Thr Arg Lys Thr Ser Glu 275 280 285

Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro Ile Pro Lys Ala Arg Arg 290 295 300

Pro Glu Gly Arg Thr Gly Ile Gly Asn Ser Ser 305 310 315

Synthetic Construct

⁷⁵ 252 <210>

<211>

PRT

Artificial

<220>

<400>

Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$ Thr Arg Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu 20 25 30 Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu 35 40 45 Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys
50 55 60 Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn 65 70 75 80 Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu 85 90 95 Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser 100 105 110 Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu 115 120 125 Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn 130 140 Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp 145 150 155 160 Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu 165 170 175 Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr 180 185 190 Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala 195 200 205 Thr Phe Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg 210 215 220 Gly Ser Met Ser Thr Ile Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn 225 230 235 240 Thr Asn Arg Arg Pro Gln Glu Phe Ile Val Thr Asp 245 250

<210> 76 <211> 252

<212> PRT

<213> Artificial

<220>

<223> Synthetic Construct

<400> 76

Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro 1 5 10 15

Thr Arg Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu 20 25 30

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu 35 40 45

Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys 50 55 60

Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn 65 70 75 80

Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu 85 90 95

Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser 100 105 110

Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu 115 120 125

Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn 130 140

Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp 145 150 155 160

Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu 165 170 175

Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr 180 185 190

Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala 195 200 205

Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg 210 215 220

Gly Ser Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly Gly Val 235 230 235 240

Tyr Leu Leu Pro Arg Arg Glu Phe Ile Val Thr Asp 245 250